



09/810 743

What is claimed is:

1. A method of making a multilayer optical film, comprising:
 - (a) providing at least a first and a second stream of resin, wherein the first stream of resin is a copolymer of polyethylene naphthalate (coPEN) and the second stream of resin is polymethyl methacrylate (PMMA),
 - (b) dividing the first and second streams into a plurality of layers such that the layers of the first stream are interleaved with the layers of the second stream to yield a composite stream;
 - (c) coextruding the composite stream through a die to form a multilayer web wherein each layer is generally parallel to the major surface of adjacent layers, wherein the coPEN and PMMA resins are coextruded at a melt temperature of about 260°C, and wherein the birefringence of the coPEN resin is reduced by about 0.02 units or less compared to the birefringence of a homopolymer PEN resin for a given draw ratio; and
 - (d) casting the multilayer web onto a casting roll to form a cast multilayer film.
2. The method of claim 1, further comprising after step (b):
 - (e) passing the composite stream into a multiplier where the composite stream is divided into a plurality of substreams, the multiplier expanding at least one of the substreams in a direction transverse to its direction of flow; and
 - (f) recombining the substreams to increase the number of layers in the composite stream.
3. The method of claim 1, further comprising:
 - (e) quenching the multilayer web during the casting step.
4. A method of making a multilayer optical film, comprising:
 - (a) providing at least a first and a second stream of resin, wherein the first stream of resin comprises a copolymer of polyethylene naphthalate (coPEN) and the second stream of resin comprises polymethyl methacrylate (PMMA),

(b) dividing the first and second streams into a plurality of layers such that the layers of the first stream are interleaved with the layers of the second stream to yield a composite stream;

(c) coextruding the composite stream through a die to form a multilayer web wherein each layer is generally parallel to the major surface of adjacent layers, wherein the coPEN and PMMA resins are coextruded with a PMMA melt temperature not below about 250°C; and

(d) quenching the multilayer web to form a cast multilayer film.

10 5. The method of claim 4, wherein the birefringence of the coPEN resin is reduced by about 0.02 units or less compared to the birefringence of a homopolymer PEN resin for a given draw ratio.

15 6. The method of claim 4, wherein the quenching step comprises casting the multilayer web onto a casting roll.

7. The method of claim 4, wherein the PMMA melt temperature is as high as 275°C.

20 8. The method of claim 4, wherein coPEN and PMMA resins are coextruded with a coPEN melt temperature of about 260°C.